

**$^{15}\text{N}(\text{p},\alpha)$  1952Sc28,1970Co09,1973Mc01**

Type	Author	History	Citation	Literature Cutoff Date
Full Evaluation	J. H. Kelley, J. E. Purcell and C. G. Sheu		NP A968, 71 (2017)	1-Jan-2017

- 1952Sc28:  $^{15}\text{N}(\text{p},\alpha)$  E=98 keV-1.5 MeV; measured products,  $^{12}\text{C}$ ,  $^4\text{He}$ ,  $E_\gamma$ ,  $I_\gamma$ ; deduced  $\sigma$ ,  $\sigma(E)$ , resonance parameters.
- 1968Go07:  $^{15}\text{N}(\text{P},\alpha_1)$  E=0.4-1.9 MeV, measured  $\sigma(E, E_\gamma)$ ,  $\gamma$ - $\gamma$ -coin,  $\sigma(E, E_\alpha)$ .
- 1969Cl07:  $^{15}\text{N}(\text{p},\alpha\gamma)$  E=898-1640 keV, measured  $\sigma(E, E_\gamma, \theta(\alpha\gamma))$ .
- 1970Co09:  $^{15}\text{N}(\text{p},\alpha\gamma)$  E=0.898, 1.640 MeV, measured Doppler shifts.  $^{12}\text{C}$  levels deduced  $T_{1/2}$ .
- 1971Gu23:  $^{15}\text{N}(\text{P},\alpha)$  E=19-45 MeV, measured  $\sigma(E, \theta)$ .
- 1972Ma21:  $^{15}\text{N}(\text{P},\alpha)$  E=54, 43.7, 50.5 MeV, measured  $\sigma(E_\alpha, \theta)$ .  $^{12}\text{C}$  levels deduced L.
- 1973Mc01:  $^{15}\text{N}(\text{p},\alpha)$  E  $\approx$  threshold, measured Q,  $\sigma(E_\alpha)$ .  $^{12}\text{C}$  deduced level.
- 1974Ro37:  $^{15}\text{N}(\text{p},\alpha\gamma)$  E=150-2500 keV, measured  $\sigma(E, E_\gamma, \theta)$ .
- 1976Pe03:  $^{15}\text{N}(\text{pol. p},\alpha)$  E=0.34-1.21 MeV, measured analyzing power  $A(\theta)$ .
- 1977Br32:  $^{15}\text{N}(\text{P},\alpha_0), ^{15}\text{N}(\text{p},\alpha\gamma)$  E=0.9-1.25 MeV, measured  $\sigma(E_\text{p}, \theta)$ , Doppler profiles.
- 1977Ja11:  $^{15}\text{N}(\text{P},\alpha)$  E=2.50-5.14 MeV, measured  $\sigma(E, E_\alpha, \theta)$ .
- 1978Fr04:  $^{15}\text{N}(\text{P},\alpha)$  E=2.88-3.64 MeV, measured  $\sigma(E, \theta)$ .
- 1978Oc01:  $^{15}\text{N}(\text{p},\alpha\gamma)$  E=8.6-18.0 MeV, measured yield.
- 1979Zy02:  $^{15}\text{N}(\text{P},\alpha_0)$  E=93-418 keV, measured  $\sigma(E, \theta)$ . Deduced astrophysical S-factor.
- 1982Re06:  $^{15}\text{N}(\text{P},\alpha)$  E=78-810 keV, measured  $\sigma(E, \theta)$ . Deduced astrophysical S-factor.
- 1983Le25, 1982LeZU:  $^{15}\text{N}(\text{P},\alpha)$  E=0.43, 0.9 MeV, measured  $\sigma(E, E_\alpha, \theta)$ ,  $\sigma(E, E_\text{p}, \theta)$ .
- 1983Sn03:  $^{15}\text{N}(\text{p},\alpha\gamma), (\text{pol. p},\alpha\gamma)$  E=2.5-9.5 MeV, measured capture  $\sigma(E_\gamma)$ ,  $\sigma(\theta\gamma)$ ,  $E_\gamma$ ,  $I_\gamma$ , analyzing power vs  $\theta$ .
- 1985Ki07:  $^{15}\text{N}(\text{p},\alpha\gamma)$  E=2.4-4.2 MeV, measured thick target relative  $\gamma$  yields,  $E_\gamma$ ,  $I_\gamma$ .
- 1987Os01:  $^{15}\text{N}(\text{p},\alpha\gamma)$  E $\approx$ 430 keV, measured  $\gamma$  yield.
- 1988Ha04:  $^{15}\text{N}(\text{P},\alpha)$  E=20-100 MeV, measured  $E_\gamma$ ,  $I_\gamma$ ,  $\sigma(\theta)$ , analyzing power vs  $\theta$ .  $^{12}\text{C}$  deduced GDR, parameters, EWSR.
- 1988Pi12:  $^{15}\text{N}(\text{p},\alpha\gamma)$  E=1.1-2.7 MeV, measured  $\gamma$ -spectra,  $\sigma(E)$ . Deduced  $\gamma$  yields.
- 1998Ad12:  $^{15}\text{N}(\text{P},\alpha)$  E=low, compiled, analyzed S-factor data, calculations.
- 2000Ig05:  $^{15}\text{N}(\text{P},\alpha)$  E=3.5-7.5 MeV, measured  $E_\alpha$ ,  $E_\gamma$ ,  $\alpha$ - $\gamma$ -coin,  $\sigma(\theta)$  for ground and first  $2^+$  states. Deduced spin-tensor component of density matrix, population of magnetic sublevels.
- 2006Ab20:  $^{15}\text{N}(\text{P},\alpha)$  E=9.09-43.7 MeV, analyzed  $\sigma(\theta)$ .
- 2010Ma26:  $^{15}\text{N}(\text{P},\alpha)^{12}\text{C}$  E=430, 897 keV, measured  $\gamma$ -ray spectra, yield, angular distributions, branching ratio, and resonance strengths.
- 2011Ma09:  $^{15}\text{N}(\text{P},\alpha\gamma)$  E<2.5 MeV, measured  $E_\gamma$ ,  $I_\gamma$ . Deduced S-factors, proton resonances. R-matrix fits.

 **$^{12}\text{C}$  Levels**

E(level) <sup>†</sup>	$J^\pi$	$T_{1/2}$	$L^\ddagger$	Comments
0 4432 10	$2^+$	45 fs 6	1	E(level): From $E_\alpha$ (1952Sc28). $T_{1/2}$ : From $\tau_m=65$ fs 9 (1970Co09).
7654.2 16			1	E(level): From (1973Mc01).
$14.08 \times 10^3$	$4^+$		3	
$16.1 \times 10^3$	$2^+$		3	
$17.76 \times 10^3$			1	

<sup>†</sup> See for example (2006Ab20).<sup>‡</sup> From (1972Ma21).

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 $^{15}\text{N}(\text{p},\alpha)$     1952Sc28,1970Co09,1973Mc01 (continued) $\gamma(^{12}\text{C})$ 

$E_\gamma$	$E_i(\text{level})$	$J^\pi_i$	$E_f$	Comments
4443 20	4432	$2^+$	0	$E_\gamma$ : From $E_\gamma$ (1952Sc28).

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 $^{15}\text{N}(\text{p},\alpha)$     1952Sc28,1970Co09,1973Mc01Level Scheme